



FOREIGN ANIMAL DISEASE PREPAREDNESS AND RESPONSE STRATEGY REPORT

January 2019

Pursuant to Senate File 510, the Iowa Department of Agriculture and Land Stewardship (IDALS) Animal Industry Bureau submits this report to update the Legislature on the Department's preparations for any future outbreaks of a foreign animal disease and the utilization of the Foreign Animal Disease Preparedness and Response Fund. Senate File 510 directed the Department as follows:

In developing a foreign animal disease preparedness and response strategy as required in section 163.3C as enacted in this division of this Act, the department shall prepare an interim report to be submitted to the joint appropriations subcommittee on agriculture and natural resources not later than January 10, 2019. The interim report shall include preliminary findings and recommendations together with plans for completing the strategy. The department shall prepare a final report to be submitted to the joint appropriations subcommittee on agriculture and natural resources not later than January 10, 2019. The report shall include final findings and recommendations for establishing the strategy, and may include any proposed notice of intended action for consideration by the department or proposed legislation for consideration by the general assembly.

Due to the continual threat of foreign animal diseases (FAD) to the U.S. agricultural sector IDALS has been utilizing this funding to prepare strategies to quickly identify an FAD entry into our state and ways to quickly mitigate it if it were to happen. The rapid spread of African Swine Fever (ASF) in China since August 2018 poses a risk not only to international markets but to our swine industry in Iowa. The risk this poses, coupled with the continual threat of avian influenza (AI) to Iowa's flocks which in the past impacted 32 million birds in 18 Iowa counties, has made this funding critical for us to fulfill our mission.

Based on our previous experiences with the 2015 AI outbreak, and the increasing threat of ASF, the need for additional veterinary and epidemiological expertise to coordinate ongoing preparedness and response efforts was identified. As result of the funding allocated last year for the Animal Disease Preparedness and Response Fund, an Emergency Management Coordinator for Animal Health (Dr. Andrew Hennenfent, DVM, MPH) was on-boarded. Dr. Hennenfent comes to IDALS with extensive experience in veterinary public health, epidemiology, and regulatory matters. Since joining IDALS he has been meeting with industry stakeholders, collaborating with interstate partners, and liaising with federal agencies. This has included attending USDA sponsored emergency animal response trainings, joining regional FAD working groups, observing PQA+ audits performed at Iowa swine facilities, and observing a large multi-day FAD table top exercise conducted by the Kansas Department of Agriculture. Dr. Hennenfent has also started planning FAD producer meetings to be held throughout our state and



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launched in the first quarter of 2019. These will help prepare our producers on what to expect during an FAD outbreak and what steps they can take now to minimize the impact on their herd if an FAD is detected in the U.S. Furthermore, Dr. Hennenfent is currently drafting the IDALS ASF response plan and hosting regional workshops and exercises.

In addition to our current ASF preparedness and response efforts we have been consulting with various state stakeholders such as the Iowa Cattlemen's Association, the Iowa State Dairy Association, the Pork Producers Association, the Iowa Sheep Producers Industry Association, the Iowa Turkey Federation, and the Iowa Poultry Association, to name a few.

Furthermore, our staff has been actively involved in national FAD trainings and workshops. In May 2018 IDALS held an AI Response workshop for our stakeholders. The workshop discussed emergency response plans, policies, and procedures. A detailed summary of this workshop and its findings are included in this report.

In November 2018 six Animal Industry Bureau employees attended a USDA training for the national electronic Emergency Management Response System (EMRS). This system will allow IDALS to quickly identify which premises are and are not located near an infected premise in the event of an FAD outbreak. That same month an IDALS representative attended a national ASF policy meeting. IDALS is transitioning to using this system as our primary database to house registered premises.

IDALS has continued to update Iowa's voluntary premises identification database through this budget year, a process that started in July 2017, as well as transitioning all information into EMRS. This allows producers to voluntarily register their premises, provide the key contact for the premises, identify livestock on the premises, and give the 911 address of the premises. Once the information is received from the producer, a seven-digit identification number is issued. This enables IDALS to quickly identify all premises in an area of an infected premises and quickly setup procedures and protocols to help stop the spread of the disease and to assist in timely notification of neighboring producers. As of January 10, 2019, premises records for all counties in Iowa have been updated by mailing out 33,081 premises renewals. This has resulted in 29,435 premises registered; a net increase of 24,786 premises registered since the last fiscal year. Moving forward, new premises will be asked to register when they are created and renewals for existing premises will be sent to one third of all registered premises on a yearly basis. This will help ensure our premises registration database is kept up-to-date.

Additional information about the Department's Premises Identification Program can be found at <https://www.iowaagriculture.gov/animalIndustry/premisidentificationProgram.asp>.

Avian Influenza Response Workshop

May 30, 2018

Report on a Workshop organized by the
Center for Food Security and Public Health for the
Iowa Department of Agriculture and Land Stewardship

Submitted June 30, 2018

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Avian Influenza Response Workshop

The Center for Food Security and Public Health (CFSPH) at Iowa State University worked with the Iowa Department of Agriculture and Land Stewardship (IDALS) to organize and host an Avian Influenza Response workshop to discuss emergency response plans, policies, procedures, and options as they pertain to low pathogenicity avian influenza (LPAI) and avian influenza (AI) with zoonotic potential. The workshop was held on May 30, 2018 at Iowa State University College of Veterinary Medicine, in Ames.

Participation was by invitation to key representatives from a wide variety of interests within the poultry industry. Each participant received an electronic copy of Iowa's current avian influenza plan ("Bird Book"), accessed at:

<https://www.iowaagriculture.gov/animalIndustry/pdf/2017/IAPremisesPreparednessbirdbook0102017.pdf> prior to the meeting.

The Objectives identified for this Workshop include:

- Provide scientific background information about avian influenza viruses affecting poultry and avian influenza viruses that may pose a zoonotic risk to humans.
- Discuss the response activities that contain spread of the virus while allowing poultry production to continue.
- Using possible scenarios, discuss the collaborative response actions by industry, State and Federal government to help future response planning efforts for both low pathogenicity avian influenza and an avian influenza virus with zoonotic potential.

The Workshop included presentations on:

- The Science of Avian Influenza - Scientific Background for Making Decisions During an Avian Influenza Outbreak (Dr. Jim Roth, Center for Food Security and Public Health (CFSPH), Iowa State U (ISU))
- The Status of Low Pathogenicity Avian Influenza (LPAI) Response at the Federal Level (Dr. Kevin Petersburg, United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) Veterinary Services (VS))
- The Status of LPAI Response at the State Level (Dr. Jeff Kaisand, Iowa Department of Agriculture and Land Stewardship (IDALS))
- Secure Poultry Supply Plans and National Poultry Improvement Plan (NPIP) Biosecurity Standards (Dr. Molly Lee, CFSPH ISU and Emily Reynolds, National Poultry Improvement Plan (NPIP))
- NPIP Avian Influenza Surveillance and Wildlife Testing (Dr. Yuko Sato, Veterinary Diagnostic & Production Animal Medicine (VDPAM), ISU)
- Differences Between Egg Layers and Turkeys in an AI Response (Dr. Mohamed El-Gazzar, VDPAM ISU)
- Zoonotic Avian Influenza and the Human Component (Dr. Ann Garvey, Iowa Department of Public Health (IDPH))

An agenda and a handout including printed handouts of the above presentations were provided to attendees; these are included in **Appendix 1**. Copies of the PowerPoints used at the meetings are available upon request.

The Workshop also included three separate scenarios to set the stage for interactive discussion. Facilitators used a bank of questions specific to each scenario to guide and focus the discussion as needed.

A Hot Wash following the workshop, as well as participant feedback forms collected from all participants, gathered strengths and actions for improvement based on the Workshop discussion.

The following report includes:

- A summary of the major points of discussion relating to the presentations and for each scenario that was presented,
- Outcomes of the Hot Wash conducted at the end of the scenario,
- Key issues, observations, recommendations and corrective actions collected from the participant feedback forms, and
- A summary of the exercise design and conduct assessment collected from the participant feedback forms.

A copy of the invitation list and list of individuals that participated in the Workshop is included in **Appendix 2**.

Acknowledgements:

This workshop was funded by the Iowa Department of Agriculture and Land Stewardship and organized by the Center for Food Security and Public Health at Iowa State University. Planning for the workshop was led by Dr. Jeff Kaisand of IDALS and Dr. Janice Mogan-King of CFSPH. This report was prepared by Dr. Molly Lee of CFSPH.

Report of Discussion:
Overview Presentations

Dr. Roth's scientific overview emphasized that sequence and type is critical to determining pathogenicity and zoonotic potential of AI, that influenza viruses have the potential to change rapidly, and that this has been increasing in recent years. In addition, it was emphasized that vaccine masks infection, thus creating difficulties relating to eradication and trade consequences.

Dr. Petersburg's overview of the status of LPAI response at the federal level encouraged industry feedback on the LPAI Indemnity and Compensation Decision Analysis and Criteria for Release of H5/H7 Control Marketed/Slaughtered Flocks (included in Appendix 1). Of note, USDA will no longer accept receipts from producers for the cost of cleaning and disinfection (C&D); rather, USDA will pay a "calculator value"- or a percentage of a flat rate that is determined based on the type of structure, bird type, etc. USDA may offer less than 100% indemnity for LPAI (with or without controlled marketing); industry expressed concern at this. Individuals also requested clarification pertaining to the "exceptions" to indemnity payments. Regarding "evidence of significant biosecurity lapses," the farms would be evaluated as a whole, and it is undetermined whether pre-event biosecurity inspections would influence a site's eligibility. Producers are encouraged to have a biosecurity plan in place, and be following it, to be considered for indemnity. Regarding indemnity payments for controlled marketing vs. depopulation, if USDA recommends controlled marketing for a flock, and a company opts to depopulate this flock instead, no indemnity would be provided.

Dr. Kaisand's overview of the status of LPAI response at the state level sparked discussion relating to large layer sites and how controlled marketing could be implemented. First steps would be to work through if indemnity is/isn't offered, and then IDALS would work with producers to determine what would happen to the site, including live birds and product. While each evaluation will be on a case-by-case basis, two consistent points were emphasized for decisions involving controlled marketing: no live birds will be removed from the site until it is determined that movement of live birds will create negligible risk to other birds, and no new birds will be brought onto the premises until all birds on the premises when LPAI was diagnosed are removed. One concern brought up by industry was that for a large, multi-age layer complex, not allowing new birds on until all old birds are gone is essentially the same as depopulating; for these premises, consider strategies that would allow for demonstration that birds and environment are negative barn by barn.

Dr. Lee's overview of the Secure Poultry Supply Plan and Ms. Reynolds' overview of the NPIP Biosecurity Standard E principles prompted discussion of the size of producers that the Standard E principles apply to (minimum numbers are how NPIP defines "commercial poultry producer" in the Code of Federal Regulations), and that there are significant educational efforts to help small producers implement these standards.

Dr. Sato's overview of NPIP Avian Influenza surveillance and wildlife testing emphasized strengthening biosecurity during high risk times, and clarified that active surveillance occurs during peacetime, and that passive surveillance is reactive testing related to potential clinical signs.

Dr. El-Gazzar's overview of differences between egg layers and turkeys in an AI response noted that the bottleneck in the process from infection to eradication is depopulation and disposal; when controlled marketing becomes an option, the end goal becomes to clear the virus and move to the plant, but there is still a bottleneck. He noted that it is less of a bottleneck in floor birds as compared to layers. How controlled marketing will be performed in egg layers is less clear than in turkeys.

Dr. Garvey's overview of zoonotic AI and the human component noted that public health officials do not have authorities on farm, whether or not AI is zoonotic, and that there is no intent at the state (IDPH) or federal (Centers for Disease Control and Prevention (CDC)) level to making changes to what needs to be done to control disease in animals. IDPH cannot require that employees wear PPE, be fit tested for N95 respirators, nor that the company must provide PPE (but this is recommended). It was also noted that CDC acts in more of an advisory or consulting role if invited by states, but does not have as many regulatory authorities. It was observed that human-human transmission is rare and not usually sustained, but that there is always the risk for this to shift. Public health messaging, if too frequent, may cause public health panic, so is carefully crafted and delivered—IDPH is open to feedback on this by industry. There is new federal guidance under development pertaining to worker monitoring that would request the facility provide a list of individuals who have had contact with sick birds and would follow up with workers for 10 days past their last unprotected contact. Steps include initiating daily contact with these individuals, screening for clinical signs and offering assistance if needed (active surveillance). Industry remarked that worker monitoring by email and text worked very well during the 2015 High Pathogenicity Avian Influenza (HPAI) outbreak. It was noted that antiviral recommendation is by referral to healthcare provider, and that there are no plans for blanket antiviral distribution.

Dr. Gomez's overview noted that CDC is lead, and APHIS is support, in development of an updated document on monitoring AI responders for influenza like illness; this document is concerned with animal influenza viruses of public health concern, rather than distinguishing between HPAI and LPAI. This guidance document is directed towards APHIS responders but may also be used to monitor other exposed persons. The key revision since originally drafted in 2005 is a shift to risk-based monitoring recommendations (passive self-monitoring for 10d following exposure for persons appropriately wearing PPE and with no history or no/low risk for infection). In July, a tabletop exercise will work through public health response issues for a higher risk AI strain.

Scenario 1- Presumptive positive LPAI results have been reported by ISU Veterinary Diagnostic Laboratory in a multimillion head, multiage table egg layer facility in Iowa, and confirmed H5/H7 by the National Veterinary Services Laboratories (NVSL). The results have been reported to Dr. David Schmitt, State Animal Health Official.

This scenario discussion was allowed to proceed according to what producers wanted to know to make decisions.

First questions pertained to how close to their farms are to the Infected Premises (IP).

- Participating producers indicated that if they were the IP, they would share this information with their association, who would then share with the members. It was clarified that producers may report positives at any time; World Organisation for Animal Health (OIE) reporting is done by USDA and will occur once confirmed by NVSL.

Discussion on testing.

- One attendee advocated for more testing on both poultry and eggs to determine what may ship and the potential status of what was already shipped and to start to establish baseline/historical testing data. Most producers agreed that they would increase their sampling to help with making decisions relating to shipping product while waiting for more information; some did not want to know if eggs were positive, especially if pasteurized. Attendees were reminded that LPAI virus does not often go systemic so it would be rare for eggs to be infected, except from fecal contamination on the outside of the egg. Washing and sanitization of eggs should remove external contamination with AI viruses.
- It was noted that testing for eggs will likely not be *required* due to its complexity (inside vs. outside of egg, which test to use, etc.) but this could get complicated and may fall under the jurisdiction of USDA or the US Food and Drug Administration (FDA).

Discussion on quarantine and movement control occurred.

- There was much discussion on what defines a “premises,” whether this is a whole farm, all sites under one biosecurity plan, or a single building within a farm. IDALS indicated that the state would err on the side of caution when considering what is part of an infected premises (IP), and this would consider geographic distance as well as dangerous contacts. When asked for their input on an appropriate surveillance zone surrounding an IP, participants agreed that a 10 km zone would be appropriate, but recognized that locations of dangerous contacts may expand this zone.
- Producers were also reminded that farms will be quarantined, and before movement is allowed (and before indemnity will be considered), producers must establish a biocontainment line.
- Producers were reminded that quarantine means that nothing can move onto the premises until permitted, and not that movements off the premises will not be allowed from quarantined premises.

Discussion of biosecurity and biocontainment.

- There was discussion about what industry would do on an IP once it is quarantined. One attendee reminded of the importance of both inclusion and exclusion biosecurity. It was noted that the longer an IP is able to keep virus out of some houses on the site, the stronger the likelihood that it will remain negative, thus potentially affecting decisions to move from depopulation to controlled marketing. Therefore, it was recommended that producers begin implementing appropriate biosecurity and biocontainment sooner rather than later.
- Producers discussed use of mitigation steps to reduce virus load in the environment (chlorine dioxide, drinker sanitization, etc.)

Discussion of depopulation vs. controlled marketing.

- Participants asked if a producer chooses to depopulate one house to prevent a slow rolling infection or mutation, then could there be an avenue for controlled marketing for the other houses.
 - Participants proposed piecing together Secure Egg Supply (SES) and NPIP *Salmonella* Enteritidis (SE) plans to isolate barns on a multi-age large layer facility. It was noted that this would not work with a shared egg belt. It was also noted that in 2015, this did not work, and that IDALS would need industry to demonstrably show what changes in production practices would be made to keep barns negative.
 - Industry would like to have a meeting to discuss this concept and propose potential solutions for APHIS and IDALS consideration.
- Producers were advised that they cannot supersede the stepwise process outlined in the USDA Presumptive and Confirmed LPAI Decision Process matrix.
- If it is assumed that there will be no indemnity, the decision to depopulate one house may be possible. In addition, IDALS will likely need further information (e.g., diagnostic test results from other barns) to recommend such decisions.
- Industry considers their best option to prepare for controlled marketing decisions to finish risk analyses for serology (i.e., what is the risk of keeping birds alive vs. depopulating given a specific seroprevalence in a flock).
- Participants asked whether the state or USDA has guidance about timeframe for when controlled marketing is considered to be “working” as a strategy or not. IDALS noted that they will continue to test as long as there is risk of moving birds, and no new birds will be moved onto the site until all birds that were on the site are moved out. The “success” of controlled marketing will be judged by disease control, not by production efficiency.
- Participants discussed cost-sharing/self-insurance, or lobbying for indemnity, as two possible strategies to ease economic burden of disease control measures.

Participant questions regarding State authority to take livestock and indemnity.

- IDALS clarified that indemnity is only required if government mandates that animals are destroyed, and that if this does not occur, there is no mandate for indemnity.
- IDALS also clarified that regulatory takings law is very complicated. Producers do not prevail if they are denied the ‘best economic use of their property. Courts look to see producers have retained a reasonable use of their property which has been held by some courts to be as low as maintaining 50% of the best use option.
- Recall that even if no indemnity is provided, IDALS still has the authority to control movements onto and off quarantined sites.
- It was noted that the 2-3 day after diagnosis is very important to determine if IP is LPAI vs. HPAI, as this will trigger an entirely different scenario.

Discussion on product movement.

- It was clarified that IDALS would stop movement of eggs and birds off an IP until a decision is made regarding what happens to eggs that continue to be produced.
- Industry emphasized the importance of risk assessments and epidemiologic information, including biosecurity practices, for movement of specific products.

- Washed and sanitized shell eggs- very low risk
- Liquid raw egg sealed in a tanker- very low risk
- Flats being brought back from a breaker/another facility- high risk
- Industry proposed setting up a system where one farm is dedicated to one breaker, etc.
- It was noted that the purpose of not moving eggs should be considered—public health risk vs. disease spread risk—and how this may affect recalls and public perception. Industry agrees primary concern is risk of disease spread.
- IDALS recommended to the Iowa Poultry Association and the Iowa Turkey Federation to collect risk assessments and various scenarios, so IDALS can have guidance ready for some scenarios.
- Some producers have begun to converse with consumers concerning the movement of product during an LPAI outbreak, to ensure a market for their product.
- IDPH indicated that significant discussions with FDA about movement and recall of eggs off an LPAI IP are needed.

Discussion on vaccination.

- It was noted that APHIS, in conjunction with the state, will decide whether vaccination may be used.
- Even if vaccination is permitted, the value of this would be difficult to determine (consider autogenous vaccine development, efficacy testing is lacking, availability of vaccine in NVS questionable depending on strain, trade repercussions).
- Industry's opinion on vaccination was requested.
 - One egg producer commented that they were comfortable with vaccination, as long as there were sentinel birds that were monitored to ensure no new introduction of disease.
 - Another (non-layer) producer would want to use vaccination to stop the spread of virus on the IP and eliminate virus as soon as possible.
 - An egg producer noted that there is no way to quickly depopulate layers, so vaccination is a preferred way to control virus spread.
 - Participants were reminded that influenza virus vaccines reduce shedding and prevent clinical signs, but do a poor job at eliminating the virus (this is why sentinel birds are key).
- Stakeholders noted that vaccination might be a good solution for producers trying to go toward controlled marketing and eliminate virus within a shorter period of time, but NOT as a long-term control strategy, since the virus then has increased potential to mutate to HPAI.

Scenario 2- LPAI has been confirmed in a commercial turkey farm in Iowa. Sequencing indicates that an HPAI virus from a positive premises that was confirmed two days prior in another state was derived from a mutation of the LPAI virus and that the premises were epidemiologically linked.

Participants were asked what their first action would be after case confirmation. Producers reported that they would first self-quarantine, and then communicate positive results with their association.

Discussion on surveillance.

- Participants indicated that they would re-test the rest of their farm following the initial case confirmation.
- Participants also indicated that they were in favor of aggressive surveillance. It was noted that USDA would likely cover the initial round of surveillance, but ongoing testing would likely be up to the producer. NPIP and pre-slaughter active surveillance would be ongoing.
- Participants had questions relating to criteria for lifting the surveillance area. It was noted that there was not clear guidance on when this would occur; IDALS does have the authority, but not the requirement, to permit movement out of a surveillance area, and trade implications make it likely that they would not set up a control area (vs. a surveillance area) and permit for LPAI.

Discussion on indemnification, considering that the LPAI is genetically related to an HPAI virus.

- It was noted that USDA would make a decision on indemnification within 48 hours once they receive this information.

Discussion on depopulation vs. controlled marketing

- It was noted again that USDA would use Appendix D: Controlled Marketing/ Depopulation via Slaughter Decision Determination document and decision tree. USDA Incident Coordination Group (ICG) would consider timelines (ages/weights) under which birds would need to be marketed under a controlled marketing scenario. In HPAI, one option to get to “controlled depopulation” was to “thin” birds to get them to a reasonable density.
- Participants were asked if they would continue to feel comfortable with using controlled marketing for the turkey flock if it was nearby a layer facility. One producer commented that they would be comfortable with it if practices on the affected operation mimicked practices that were determined to be of low to negligible risk.

Discussion of movement of poultry from an infected premises

- It was noted that routes taken, not distance from the processing plant, are the primary concern once the testing is negative. USDA and IDALS would work together to try to establish a safe route to avoid putting other poultry premises at risk; this may not be a formal approval, or it may be included in permitting requirements.
- It was mentioned that the main focus should be on making sure that testing is done and there is a high degree of confidence that the birds are safe to move, making the movement a minimal issue (shouldn't really have to worry about a route).
- Participants were asked about their thoughts on allowing birds from another state to enter a processor in Iowa for controlled marketing. Industry thought that rules for allowing movement in should be based on zones, not geographical boundaries such as state lines. Additionally, industry considered the overall risk of allowing a movement from another state to be low, provided that there is a high level of confidence that there is not virus circulating on the IP. Restricting movement into the state may also cause problems later if Iowa producers wish to move product out of state. IDALS is in the process of drafting changes to rules and has requested input from poultry industry groups.

Discussion on depopulation methods.

- “Hen Sleepers” were discussed as an option (miniature carbon dioxide (CO₂) unit brought into the house, birds taken from cages and depopulated via continuous flow through CO₂ unit)
- Ventilation shutdown may be an option, but other options should be considered first.
- Industry remarked that they are ready to do full house CO₂ depopulation; some premises have done experiments/practices. The limiting factor may be supply of CO₂.
- Foaming is the preferred method in a turkey operation as long as they can accomplish it within 48 hours; if not, they are prepared to use VSD. Another option is to pen and cover with plastic to make a smaller area for a CO₂ depopulation.
- It was noted that if APHIS directed depopulation of a flock, the depopulation would be paid for by APHIS; however, if APHIS recommends controlled marketing and the producer chooses instead to depopulate, APHIS would not pay for depopulation.
- Industry remarked that foamers are too expensive for many farmers to purchase, although some companies have and have trained their own personnel and established a planned water source, etc. so that they are able to do this themselves in an outbreak.

Discussion on disposal.

- Industry remarked that they prefer burial over composting.
- It was noted that the “Bird Book” includes guidance on composting and developing a mass mortality management plan.
- Complications associated with burial were discussed. Because burial must occur at the same place where animals are depopulated, some producers do not have enough land associated with their facility to be used for burial. Producers can use Iowa Department of Natural Resources (DNR)’s online burial mapping system to help determine if/where on-site burial can occur. Producers were encouraged to contact their neighbor(s) to work out a contract for burial on adjacent land. Burial may be able to be done at the same location as a previous animal mortality burial site, depending on animal density per cubic foot and time elapsed.
- Rendering was discussed as a disposal option; however, renderers want an end use for their product and would like to be paid to be cleaned afterwards; this is cost prohibitive.
- Landfilling was brought up as a disposal option and that some states are working with landfills ahead of time for burial. However, there are many road blocks using landfills again in Iowa.

Scenario 3- Avian influenza (LP/HPAI) has been confirmed in a commercial poultry facility in Iowa. Although facility employees have been hired to assist with depopulation, several employees have been unable to participate after developing symptoms of influenza. Animal and human health authorities are concerned about an avian influenza virus with zoonotic potential.

It was noted that it is unknown how a zoonotic strain of AI (especially if person-person transmission, or sustainability, is shown) would affect controlled marketing in a response (this would increase risk due to poultry being kept alive for longer).

It was noted that Personal Protective Equipment (PPE) recommendations will be added to the “Bird Book.”

For this scenario, it was assumed that this virus was confirmed zoonotic.

Participants discussed what would happen if an ill worker is reported.

- IDPH indicated that the worker should see their healthcare provider right away for a throat and nasal swab to be submitted to the state public health lab so that it can be confirmed influenza and whether it is the same strain that is circulating in birds.

Participants were asked if it was feasible to equip crews and workers with PPE (availability and fit testing).

- APHIS indicated that PPE provided in an outbreak is for APHIS personnel, not producers and their employees or contractors
- Iowa Poultry Association indicated that they have requested money for PPE to help backfill producers’ needs during an outbreak
- Industry indicated that they would look to IDPH for guidance on fit testing
 - One possible solution could be a mobile resource, or working with county field extension
 - Using an online system and train-the-trainer system to do in-house fit testing using a kit was proposed as another option
- Industry indicated that the greatest challenge with fit testing was for contractors brought in, as they had to be fit tested at that time, and can be a time-consuming process
- It was noted that it would be helpful for IDALS to include in the “Bird Book” a resource list of where to find fit test trainers

Industry was asked whether they would have difficulty finding staff to perform disposal, VE, testing, restocking, and maintaining biosecurity in a zoonotic influenza outbreak.

- Some producers indicated that they would. IDALS indicated that they would not have the capacity to absorb these personnel deficiencies.
- Producers would have a responsibility to make employees aware of the risk, and employees would then have to make a determination on whether they would be willing to perform the job duties.
- If the response gets to a point where people are afraid to enter barns due to zoonotic risk, then VSD may be considered for depopulation.
- Some companies have developed “teams” to help with C&D in an event; all producers are encouraged to include this in their business continuity plans.

Mental health in an AI outbreak (whether or not zoonotic) was discussed.

- Participants indicated the need for mental health help to be sourced locally (church leaders, etc.)
- Department of Human Resources disaster mental health teams were determined to be of limited use to producers—these teams are used to debriefing with responders; a different forum might increase the value of these teams
- ISU Rural Concerns hotline may not be enough.

Hot Wash

Strengths of current response plans:

1. Notification processes
2. Quarantine process

Items needing improvement in response plans:

1. Indemnification
 - a. Industry is not sure how to step up and control LPAI without indemnity
 - b. Industry needs to consider ways to fund this- ideas included industry indemnity fund (like grain elevators indemnity fund), environmental cleanup model, crop insurance model, etc.
2. What to do with multi-age complexes
3. Depopulation vs. controlled marketing plans
4. Early detection system in peacetime
 - a. Improved diagnostic tests, increased testing frequency for LPAI
 - b. Improved wildlife surveillance
 - c. Mandatory component preferred so all producers are on the same playing field
5. Risk assessments for controlled product marketing
6. Biosecurity and biocontainment plans specific to LPAI

Additional needs:

1. Messaging (would like participation from IDALS or ISU communications specialist)

Future meetings:

1. Involve other states that Iowa interacts with frequently (epidemiologically linked states) in disease response planning
 - a. This should occur once Iowa has a better definition of and plan for controlled marketing
2. Participants desired routine Tabletop Exercises/Workshops/Meetings (every 1-2 years) to revise/refresh on response plans.
3. Industry expressed the desire to come together to discuss issues, and issue a recommendation to IDALS (esp. related to depopulation vs. controlled marketing in layer flocks with LPAI and use of vaccination).
 - a. Iowa Poultry will facilitate multiple smaller-group meetings

Key recommendations and corrective actions collected from the participant feedback forms
(number of participants with similar feedback indicated in parentheses)

1. Key strengths of response actions

- a. Communication (5)
 - i. Clear, consistent message from state and federal government
- b. Quarantine (4)
- c. Rapid Depopulation (3)
 - i. Flushing out the process for depopulation vs. controlled marketing
 - ii. Depopulation within 24 hours with indemnity from government (ideally) or organizational funding

- d. Controlled product marketing considerations (3)
 - i. Risk analysis for egg product movement (2)
 - e. Biocontainment (2)
 - i. Inclusion and exclusion biosecurity practices defined
 - f. DNR disposal guidelines
- 2. Based on today's discussion, in order of priority, list the top three response actions that need improvement, and identify the corrective action(s) that should be taken to improve.**
- a. Response Plans (9)
 - i. AI response plans should include section on LPAI
 - ii. Clear decision making process needed
 - iii. Clear plans for zoning and surveillance areas
 - iv. Clear plans for stop movement
 - v. Vaccination plans/opportunities
 - 1. Keep in front of APHIS
 - vi. Mechanism for LPAI premises to participate in Secure Poultry
 - b. Depopulation and disposal (6)
 - i. Which methods can be/will preferentially be used, for each species
 - 1. Layers- investigate whole house carbon dioxide
 - ii. Depopulation, disposal practices/exercises needed
 - c. Communication (4)
 - i. Need a process to communicate outbreak information within industry, but confidential from public (all species)
 - d. Indemnification (3)
 - i. Lack of indemnity for LPAI and how producers will react and respond is a real issue
 - 1. Indemnity should be the "carrot" to find and react to LPAI
 - 2. Full indemnity should be offered for any depopulation unless producer has not been following the biosecurity plan
 - ii. Requirements unclear
 - e. Response actions for a multi-barn, multiage layer complex with LPAI (3)
 - i. Controlled marketing options for these complexes (2)
 - f. Controlled marketing, controlled product marketing (3)
 - i. Clearer guidelines for movement of birds, product from positive site
 - g. Surveillance policies for early detection (2)
 - h. Risk assessment (2)
 - i. For common movements (esp. products- eggs)
 - ii. Related to environmental spread of LPAI due to controlled marketing (CM) (use data from turkey LPAI CM?)
 - i. Biosecurity/biocontainment (2)
 - i. Clearer plans to establish and maintain ASAP
 - ii. Lower the headcount for each species for NPIP Standard E
 - j. Recovery plans
 - i. Birds and product should be allowed to move on/off farm freely following LPAI recovery

3. Are there topics about which you would like to have had more information?

- a. Bird processing (2)
 - i. Will packers take birds positive for LPAI?
 - ii. Iowa's plans re: permitting in from affected states
- b. Premises ID (2)
 - i. Splitting facilities to allow partial quarantine or layered movement approaches
- c. Depopulation (2)
 - i. More information on methods
 - ii. Ventilation experts for multi-barn layer complexes to help with investigation/ elimination steps
- d. Current info on policy/trade discussions and implications (2)
- e. Public messaging
- f. Indemnity
- g. Clarity on State Code and Administrative Rules vs. guidelines
- h. Controlled product marketing guidelines and risk assessments
- i. Producer responsibility for biocontainment, PPE, etc.

4. List the applicable policies, plans and procedures that should be reviewed, revised, or developed. Please indicate if each is an industry, state or federal responsibility.

- a. *Industry*
 - i. Communication strategy for LPAI positive test results
 - ii. Share industry/operation LPAI response plans with state for review
 - iii. Procedures and sources for worker PPE
 - iv. Plans for what to do with eggs until a decision is made that facility can control market their product
 - v. Consider self-funded or cost share indemnity plan
- b. *State*
 - i. Importation (4)
 - 1. Evaluate importation definition in Iowa rules (permits for END, AI affected states, backyard poultry)
 - a. Consider restricting control areas/surveillance zones rather than by state
 - 2. Determine ability for out of state poultry producers to control market to processors within Iowa
 - ii. Controlled product marketing (CPM) (3)
 - 1. Create CPM scenarios/plans by product
 - iii. Work with IDPH on PPE requirements/fit testing education for poultry producers
- c. *Federal*
 - i. If mandatory depopulation is required- 100% indemnity should be paid; consider pulling funds from HPAI pool (so LPAI doesn't become HPAI)
 - ii. Consider revision of Appendix D questionnaire to better assess CM decision for multiage layer complexes

5. Additional Feedback

- a. Desire for follow up meetings with different species/commodity groups to continue working on projects with AI
 - i. May have been helpful to have industry breakouts at this meeting
 - ii. Special attention to large layer complexes
- b. Follow up meetings to be structured around problem solving for challenges (e.g., controlled product marketing discussion)
- c. Need input from additional key industry people to make decisions

Exercise Design and Conduct Assessment

Multiple participants provided written feedback expressing a positive experience with, and appreciation for, the meeting. The following is a summary of the overall workshop assessment ratings (average on scale from 1 (strongly disagree) to 5 (strongly agree)):

Workshop was a good use of time.	4.3
Workshop was well structured and organized.	4.7
Presenters delivered background information that assisted the discussion.	4.4
Discussion scenarios were plausible.	4.4
Facilitators were knowledgeable and kept discussion on target.	4.6
Exercise documentation assisted in participating in the exercise.	4.1
Participant has a general understanding of the roles and authorities of the key stakeholders in an Iowa avian influenza outbreak (low path and zoonotic).	4.4
Discussion has helped participant understand the challenges of an avian influenza response.	4.5
Discussion will help participant's industry/agency/organization prepare to respond to and/or support an avian influenza response.	4.5
Discussion has provided the opportunity to provide input on the development of plans.	4.3

Appendix 1: Avian Influenza Response Workshop Agenda and Participant Handout with Presentations

Avian Influenza Response Workshop

Sponsored by
Iowa Department of Agriculture and Land Stewardship

May 30, 2018

The Avian Influenza Response Workshop is sponsored by the Iowa Department of Agriculture and Land Stewardship (IDALS), and hosted by the Center for Food Security and Public Health, Iowa State University. This Workshop document was produced with input, advice, and assistance from the Workshop Planning Team, which followed guidance set forth in the U.S. Department of Homeland Security (DHS) Homeland Security Exercise and Evaluation Program (HSEEP).

This Workshop is designed to establish a learning environment for all attendees to discuss emergency response plans, policies, procedures, and options as they pertain to low pathogenicity avian influenza (LPAI) and avian influenza (AI) with zoonotic potential. Representatives from a wide variety of interests within the poultry industry have been invited to participate in this Workshop.

Current Iowa avian influenza plans are described in the “Bird Book” accessed at:

<https://www.iowaagriculture.gov/animalIndustry/pdf/2017/IAPremisesPreparednessbirdbook01102017.pdf>

The Objectives identified for this Workshop include:

- Provide scientific background information about avian influenza viruses affecting poultry and avian influenza viruses that may pose a zoonotic risk to humans.
- Discuss the response activities that contain spread of the virus while allowing poultry production to continue.
- Using possible scenarios, discuss the collaborative response actions by industry, State and Federal government to help future response planning efforts for both low pathogenicity avian influenza and an avian influenza virus with zoonotic potential.

The agenda includes brief presentations by several speakers, and three separate scenarios to set the stage for interactive discussion. Scenarios are purposely presented as general to encourage thought involving a variety of circumstances. IDALS is requesting industry guidance and constructive input on future response planning.

Some response decisions are dictated by policy/regulations – state and/or federal. However, there are many response activities that will be implemented based on situation-specific considerations. Response plans include options that may be available based on known information at the time. Today will provide information to develop options for future response.

To ensure each attendee has an opportunity to participate in the discussion, comments should be concise. A Hot Wash will follow the Workshop to gather last thoughts on the strengths of today, and the actions that need improvement. In addition, a Participant Feedback Form provides an opportunity to provide comments. It is our hope that today’s collaboration will lead to sound future response planning for LPAI and an AI that may have zoonotic potential.

A report of the comments made at this Workshop will be presented to IDALS for future planning efforts.

Again, thank you for committing your valuable time to participate in this Workshop.

Jim Roth, DVM

Director, Center for Food Security and Public Health, Iowa State University

Avian Influenza Response Workshop Agenda

- 8:00 AM Check in
- 8:30 AM Welcome
Mr. Steve Moline, Division Director, Iowa Department of Agriculture and Land Stewardship (IDALS)
Purpose of this open discussion
- 8:45 AM The Science of Avian Influenza - Scientific Background for Making Decisions During an Avian Influenza Outbreak
Dr. Jim Roth, Center for Food Security and Public Health (CFSPH), Iowa State U (ISU)
- 9:00 AM The Status of Low Pathogenicity Avian Influenza (LPAI) Response at the Federal Level
Dr. Kevin Petersburg, United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) Veterinary Services (VS)
- 9:15 AM The Status of LPAI Response at the State Level
Dr. Jeff Kaisand, Iowa Department of Agriculture and Land Stewardship (IDALS)
- 9:30 AM Secure Poultry Supply Plans and NPIP Biosecurity Standards
Dr. Molly Lee, CFSPH ISU
Emily Reynolds, National Poultry Improvement Plan (NPIP)
- 9:45 AM NPIP Avian Influenza Surveillance and Wildlife Testing
Dr. Yuko Sato, Veterinary Diagnostic & Production Animal Medicine, ISU
- 10:00 AM Break
- 10:15 AM Scenario 1 – LPAI in table egg layer facility
Discussion 90 minutes
Facilitated by Dr. Yuko Sato
- 11:45 AM Lunch
- 12:30 PM Differences Between Egg Layers and Turkeys in an AI Response
Dr. Mohamed El-Gazzar, Veterinary Diagnostic & Production Animal Medicine, ISU
- 12:45 PM Scenario 2 – LPAI in a turkey production facility with a possible mutation
Discussion 75 minutes
Facilitated by Dr. Mohamed El-Gazzar
- 2:00 PM Break
- 2:15 PM Zoonotic Avian Influenza and the Human Component
Dr. Ann Garvey, Iowa Department of Public Health
- 2:30 PM Scenario 3 – Avian influenza in poultry with zoonotic potential
Discussion 75 minutes
Facilitated by Dr. Ann Garvey
- 3:45 PM Hotwash
Facilitated by Dr. Janice Mogan, CFSPH ISU
- 4:15 PM Closing Remarks
Ms. Gretta Irwin, Iowa Turkey Federation
Mr. Kevin Stiles, Iowa Poultry Association

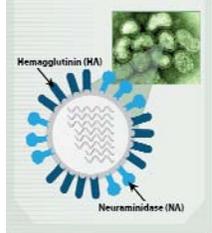
Avian Influenza - Scientific Background for Making Decisions During an Avian Influenza Outbreak

Jim Roth, DVM, PhD
 Center for Food Security and Public Health
 College of Veterinary Medicine
 Iowa State University



Influenza A Viruses

- Wild waterfowl and migrating birds are reservoir, usually with no symptoms
- RNA virus: 8 segments
- 18 hemagglutinin types
 - Attachment
- 9 neuraminidase types
 - Virus release
- Major differences within Hemagglutinin and Neuraminidase types (e.g. H5N1)

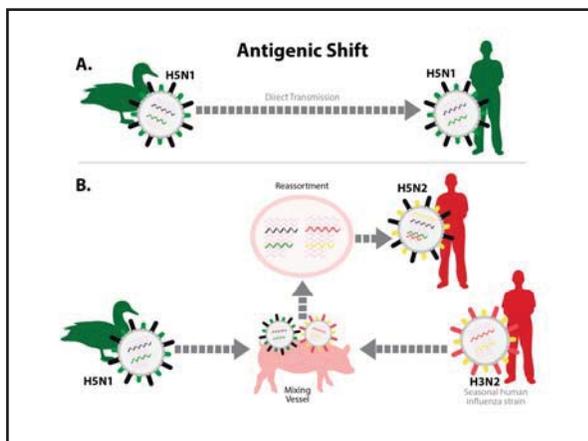
Influenza A Viruses

- Replicate rapidly in the infected host
- Must spread from the infected host to a new host before the immune system responds and shuts down replication and shedding
- Have a very high mutation rate
- High population densities favor influenza outbreaks and virus mutation
- Allows the virus to adapt to new hosts
- Influenza A viruses are changing rapidly on a global scale

Antigenic Drift

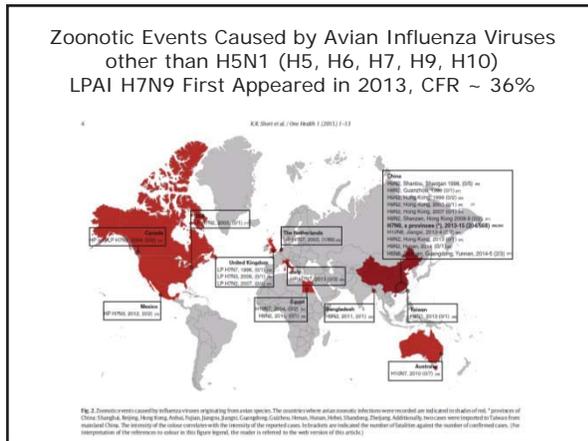
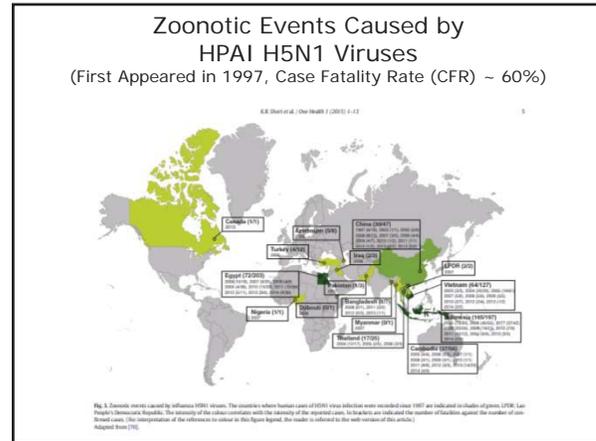
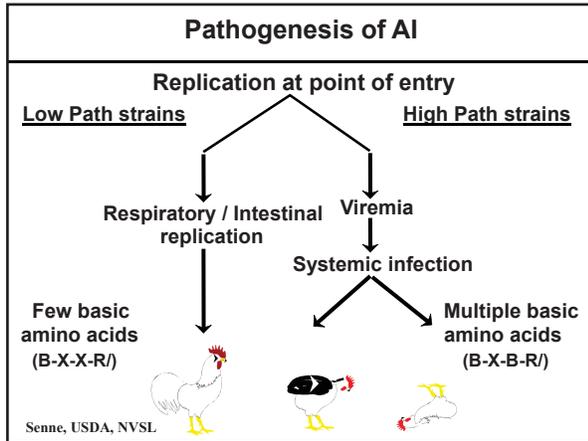
- Point mutations in H and/or N genes
- Allows the virus to mutate away from antibodies that can neutralize it
- Cause of seasonal epidemics
- Limits the ability to use vaccines to control influenza outbreaks

<http://www.youtube.com/watch?v=ug-M1n1hflA>



High Pathogenicity vs Low Pathogenicity

- HPAI (in poultry):
 - An H5 or H7 with specific genetics and/or high lethality
 - Any non H5 or H7 with high lethality
- LPAI (in poultry):
 - Any H type including H5 or H7
 - No or mild clinical signs
 - Infection localized



- ### Testing for Avian Influenza
- Virus detection
 - PCR- Detects nucleic acid from live and dead virus
 - Antibody to detect virus antigen
 - Virus isolation detects live virus
 - Antibody detection
 - Recovery from infection
 - Due to vaccination
 - Passive transfer from hen

- ### Vaccination as a Tool for Control of Avian Influenza
- Vaccine is specific for the strain of virus in the vaccine and closely related strains
 - Vaccinated flocks may still become infected
 - Clinical signs may be greatly reduced, but the virus may still replicate and mutate
 - The flock will still need to be depopulated to destroy the virus

- ### Vaccination as a Tool for Control of Avian Influenza
- Vaccination for avian influenza will result in the loss of most export markets for all poultry and uncooked products



The Status of Low Pathogenicity Avian Influenza (LPAI) Response at the Federal Level

Dr. Kevin Petersburg

Assistant District Director, United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) Veterinary Services (VS)

Dr. Petersburg will provide an overview of USDA's support during a low path avian influenza response. The presentation will review the following materials in this handout:

- LPAI Indemnity and Compensation Decision Analysis
- Appendix D: Controlled Marketing/Depopulation via Slaughter Decision Determination
- Criteria for Release of H5/H7 Control Marketed/Slaughter Flocks
- USDA LPAI Decision Matrix – Presumptive and Confirmed LPAI Decision Process

USDA

LPAI Outbreak Response

Proposed Policies and Strategy Changes

Kevin L. Petersburg
Assistant Director IA/WI
USDA, APHIS, VS
May 30, 2018

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Authority- Animal Health Protection Act & Regulations in 9CFR 56

- (a) *Activities eligible for indemnity.* The Administrator may pay indemnity for the activities listed in paragraphs (a)(1) through (a)(3) of this section, as provided in paragraph (b) of this section:
- (1) **Destruction and disposal of poultry** that were infected with or exposed to H5/H7 LPAI;
- (2) **Destruction of any eggs** destroyed during testing of poultry for H5/H7 LPAI during an outbreak of H5/H7 LPAI; and
- (3) **Cleaning and disinfection of premises, conveyances, and materials** that came into contact with poultry that were infected with or exposed to H5/H7 LPAI; or, in the case of materials, if the cost of cleaning and disinfection would exceed the value of the materials or cleaning and disinfection would be impracticable for any reason, **the destruction and disposal of the materials.**

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Percentage Administrator is authorized to pay

(b) *Percentage of costs eligible for indemnity.* Except for poultry that are described by the categories in paragraphs (b)(1) through (b)(3) of this section, the **Administrator is authorized to pay 100 percent of the costs**, as determined in accordance with §56.4, of the activities described in paragraphs (a)(1) through (a)(3) of this section, regardless of whether the infected or exposed poultry participate in the Plan. For infected or exposed poultry that are described by the categories in paragraphs (b)(1) through (b)(3) of this section, the **Administrator is authorized to pay 25 percent of the costs of the activities** described in paragraphs (a)(1) through (a)(3) of this section:

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Summary Points from LPAI Meeting: March 2018

- State animal health officials, Federal and State National Poultry Improvement Plan (NPIP) representatives, and several national poultry associations.
- VS sought feedback as to the feasibility and impact of proposed policies and strategy changes

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LPAI MEETING SUMMARY

- The central focus of this meeting was to share and discuss proposed policy changes related to indemnity and compensation rates for LPAI outbreak response activities, and decision determination for controlled marketing/slaughter.

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LPAI Indemnity and Compensation Decision Analysis

- **LPAI infection requiring notification to OIE has been confirmed by NVSL:**
- Confirmation of an H5 or H7 subtype, where the clinical presentation is not consistent with the USDA case definition for HPAI, determines an LPAI response (regardless of whether virus or sequence are obtained).

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Initiate ISRCP

- **Initiate ISRCP including quarantine of the affected premises, epidemiologic investigation, surveillance testing in the control area and flock plan development.**

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Determine if Control Marketing is an Option

- This is generally only possible for longer-lived birds, but the **assessment should be completed for ALL flocks.**

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FOR BIRDS CONTROL MARKETED

- **Pay 85% of HPAI compensation/flat rates for Disposal (materials) , Materials Destroyed and VE**
- VE paid on all occupied houses (all barns that contain birds at the time of diagnosis, or within 21 days of the onset of any clinical signs, or diagnosis in the case of no clinical signs);

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Birds Control Marketed

- Producers must provide evidence of enhanced biosecurity while birds are being held;
- Weekly testing to monitor virus is required (PCR, VI, and HA cleavage site sequence); 100% (e.g. evidence of mutation to HPAI results in depopulation with 100% indemnity);

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Some, but Not All Birds Control Marketed

- For premises where some, but not all birds may be control marketed (based on age, down time, humane issues, etc.), **indemnity on birds that must be depopulated is paid at 75% of the HPAI calculator value**, compensation still paid at 85% (for disposal, materials destroyed and VE);
- All houses must be tested following VE by environmental sampling prior to quarantine release.

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Birds That Cannot be Control Marketed

- **Pay 75% of HPAI calculator value for Indemnity;**
- **Pay 100% Depopulation costs** (speed and humane treatment are a requirement);

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Birds That Cannot be Control Marketed

- **Pay 75% of HPAI compensation/flat rates for Disposal, Materials Destroyed and VE (only for occupied barns);**
- □ All houses must be tested after VE by environmental sampling prior to quarantine release.





EXCEPTIONS to the Above Payments:

- □ Evidence of significant biosecurity lapses documented by State and/or Federal Personnel.
- □ Control Marketing/Depopulation via Slaughter recommended by VS.
- □ End-stage, lower risk** breeder birds
- □ **Pay 0% Indemnity, Depopulation, Disposal and Materials Destroyed**





For EXCEPTIONS Listed Above

- □ **Pay 75% of HPAI compensation/flat rates for VE (only for barns with non-negative test results)** - additional cleaning is still required by ISRCP;
- □ All houses must be tested after VE by environmental sampling prior to quarantine release





Criteria for Release of Control Marketed/Slaughtered flocks:

- Weekly testing will be conducted to monitor virus shedding and cleavage site (PCR and virus isolation (VI)); concerning changes in amino acid sequence at the proteolytic cleavage site warrants immediate depopulation (i.e. evidence of mutation to HPAI);





For Control Marketed/Slaughtered flocks:

- □ Collect a minimum of 30 swabs per house/barn per week (PCR can be useful as the initial test and may screen out samples to be forwarded to NVSL for VI);
- □ Serologic testing may be useful to determine where each house stands with regards to seroconversion (based upon hemagglutination inhibition titer at NVSL); minimum of 30 sera per house/barn.





Control Marketed Flocks

- Flocks actively shedding virus pose a greater risk of virus spread, and ongoing opportunities for mutation to HPAI as the virus replicates.
- **This risk increases** where seronegative birds are present while virus is being shed
- **This risk decreases** in flocks with waning infection/incidence where virus shedding has significantly decreased



USDA

Control Marketed Flocks

- **Criteria for movement:** per 9 CFR 56.5 part 56.5 (c)(ii) – **Within 7 days prior to slaughter**, each flock to be moved for controlled marketing must be tested for H5/H7 LPAI using a test approved by the Cooperating State Agency and found to be free of the virus:
 - Virus status may be determined by lack of nucleic acid detection by **PCR** direct from swabs **or from negative virus isolation**

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Control Marketed Flocks

- Detection of nucleic acid from non-viable virus is possible, especially where significant seroconversion has already occurred. Therefore, the **final determination** of virus status may be established through assessing the risk of movement (e.g. test results and production/ performance records) and **agreement among federal, state, and industry partners**.

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LPAI Indemnity and Reimbursements

- **Percentages paid for LPAI indemnity and compensation may be adjusted up or down in the future, based on available funds.**
- NVS assets, deployments of IMTs, lab reimbursements for enhanced surveillance, Supplemental Cooperative Agreements awarded to the States for response activities or other additional direct costs during an outbreak will continue to be funded at **100% (assuming funding allows)**.

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LPAI Prevention and Control

- The H5/H7 LPAI prevention and control program has always been a Federal/State/Industry partnership; **responses (including funding) should also be a partnership.**
- Response to, and funding for LPAI infections should be **based on risk; to the industry or the country as a whole**, not just locally or to a brand

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Questions/Discussion

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LPAI Indemnity and Compensation Decision Analysis

Step 1 - LPAI infection requiring notification to OIE has been confirmed by NVSL:

- Confirmation of an H5 or H7 subtype, where the clinical presentation is not consistent with the USDA case definition for HPAI, determines an LPAI response (regardless of whether virus or sequence are obtained).

Step 2 – Initiate ISRCP including quarantine of the affected premises, epidemiologic investigation, surveillance testing in the control area and flock plan development.

Step 3 – Complete Appendix D to determine if Control Marketing/Depopulation via Slaughter is an Option. This is generally only possible for longer-lived birds, but should be filled out for ALL flocks. If **yes**, continue to step 4, if **no**, skip to step 5.

Step 4 - For Birds Control Marketed/ Depopulated via Slaughter

- **Pay 85% of HPAI compensation/flat rates for Disposal (materials) , Materials Destroyed and VE**
- VE paid on all occupied houses (all barns that contain birds at the time of diagnosis, or within 21 days of the onset of any clinical signs, or diagnosis in the case of no clinical signs);
- Producers must provide evidence of enhanced biosecurity while birds are being held;
- Weekly testing to monitor virus is required (PCR, VI, and HA cleavage site sequence); concerning changes in amino acid sequence at the proteolytic cleavage site warrants immediate depopulation and indemnity will be paid at 100% (i.e. evidence of mutation to HPAI);
- Refer to Appendix E for criteria required to release flock for slaughter;
- For premises where some, but not all birds may be control marketed (based on age, down time, humane issues, etc.), indemnity on birds that must be depopulated is paid at 75% of the HPAI calculator value, compensation still paid at 85%;
- All houses must be tested following VE by environmental sampling prior to quarantine release.
- **STOP** – do not continue to step 5.

Step 5 – Birds that cannot be control marketed or depopulated via slaughter:

- **Pay 75% of HPAI calculator value for Indemnity;**
- **Pay 100% Depopulation costs** (speed and humane treatment are a requirement);
- **Pay 75% of HPAI compensation/flat rates for Disposal, Materials Destroyed and VE** (only for occupied barns);
- All houses must be tested after VE by environmental sampling prior to quarantine release.

EXCEPTIONS to the Above Payments:

- Evidence of significant biosecurity lapses documented by State and/or Federal Personnel.
- Control Marketing/Depopulation via Slaughter recommended by VS.
- End-stage, lower risk** breeder birds.

For EXCEPTIONS listed Above:

- **Pay 0% Indemnity, Depopulation, Disposal and Materials Destroyed;**
- **Pay 75% of HPAI compensation/flat rates for VE** (only for barns with non-negative test results) - additional cleaning is still required by ISRCP;
- All houses must be tested after VE by environmental sampling prior to quarantine release.

**** Determining the risk level:**

Collect additional samples as directed; a minimum of 30 swabs and 30 sera per house/barn; more samples may be needed in very large houses/barns. Conduct risk assessment to include review of factors from Appendix D, performance records, production data, and status of virus shedding (format to be determined).

Risk for spread is related to factors such as the amount of virus excreted into the environment and the duration of time that viable virus remains.

- **Virus detection:** The greater the proportion of birds positive for virus (e.g. PCR Ct <38) the greater the risk.
- **Seroconversion:** The lower the proportion of birds that have seroconverted (i.e. AGID/ELISA negative) the greater the risk.
- **Clinical presentation:** Clinical presentation (including performance and production) can be used to determine when initial infection occurred.
- **Environmental conditions:** Weather, bedding type, ventilation, and management conditions can affect how long virus will survive in the environment. Most conditions have not been well defined, except heat. The virus will be inactivated more rapidly as the temperature increases.

NOTE: the risk of LPAI mutating to HPAI is related to virus replication cycles; specific environmental and host factors that may select for HPAI are not well understood.

Appendix D: Controlled Marketing/ Depopulation via Slaughter Decision Determination

1. Please list all of the current test results available for this premises. For PCR, please list the CT values:

2. Are there multiple ages of birds on the farm? (Y) (N)

List the bird groups and ages and indicate their scheduled load out date(s):

3. List the number of commercial premises in the following zones surrounding the infected premises:

- a. Within 1km (neighboring)
- b. Within 3km (Infected Zone)
- c. Within 10 km (Buffer Zone)

4. What are the estimated number of additional At-Risk Premises, not included in the numbers above (this would include premises closely related by the network, business processes or those identified by trace-in/trace-out):

5. Where do these birds usually go for processing?

- a. In state or out of State (provide State if out of state)

- b. Approximate distance to plant (in miles) _____

- c. Can a route to the plant be planned that avoids other poultry premises? _____

- d. Any reason why the birds, once PCR negative, could NOT go to this plant? Please explain.

6. List any significant trade impacts of control marketing/slaughtering this flock:

7. List any other reasons why control marketing/depopulation via slaughter may not be a viable option for this flock (this may include other LPAI or HPAI circulating at the time):

8. Please Indicate the State and/or Industry recommendation for the management for this flock: (controlled marketing/ depopulation via slaughter, onsite depopulation, or a combination based on flock characteristics). Please indicate your reasoning for this recommendation:

Signature(s) and Title(s) of Official making the above recommendation. (State and Industry can submit separate forms or a joint form)

Signature
Title

Signature
Title

USDA APHIS VS Determination:

_____ Approve Controlled Marketing plan as recommended above.

_____ Approve On-site Depopulation as recommended above.

_____ USDA/APHIS VS is NOT in agreement with the recommendation above.

Reason for difference in agreement:

_____ More Information is needed.

A decision will be made within 48 hrs. once the information requested below is provided. (Enter information needed here)

Indemnity approved at _____ %

Depopulation approved at _____ %

Disposal, Materials destroyed and VE approved at _____ %

Signature of USDA APHIS VS ICG Official:

Printed name and title of signatory: _____

Criteria for Release of H5/H7 Control Marketed/Slaughtered flocks

For Control Marketed/Slaughtered flocks:

- Weekly testing will be conducted to monitor virus shedding and cleavage site (PCR and virus isolation (VI)); concerning changes in amino acid sequence at the proteolytic cleavage site warrants immediate depopulation (i.e. evidence of mutation to HPAI);
- Collect a minimum of 30 swabs per house/barn per week (PCR can be useful as the initial test and may screen out samples to be forwarded to NVSL for VI¹);
- Serologic testing may be useful to determine where each house stands with regards to seroconversion (based upon hemagglutination inhibition titer at NVSL); minimum of 30 sera per house/barn.

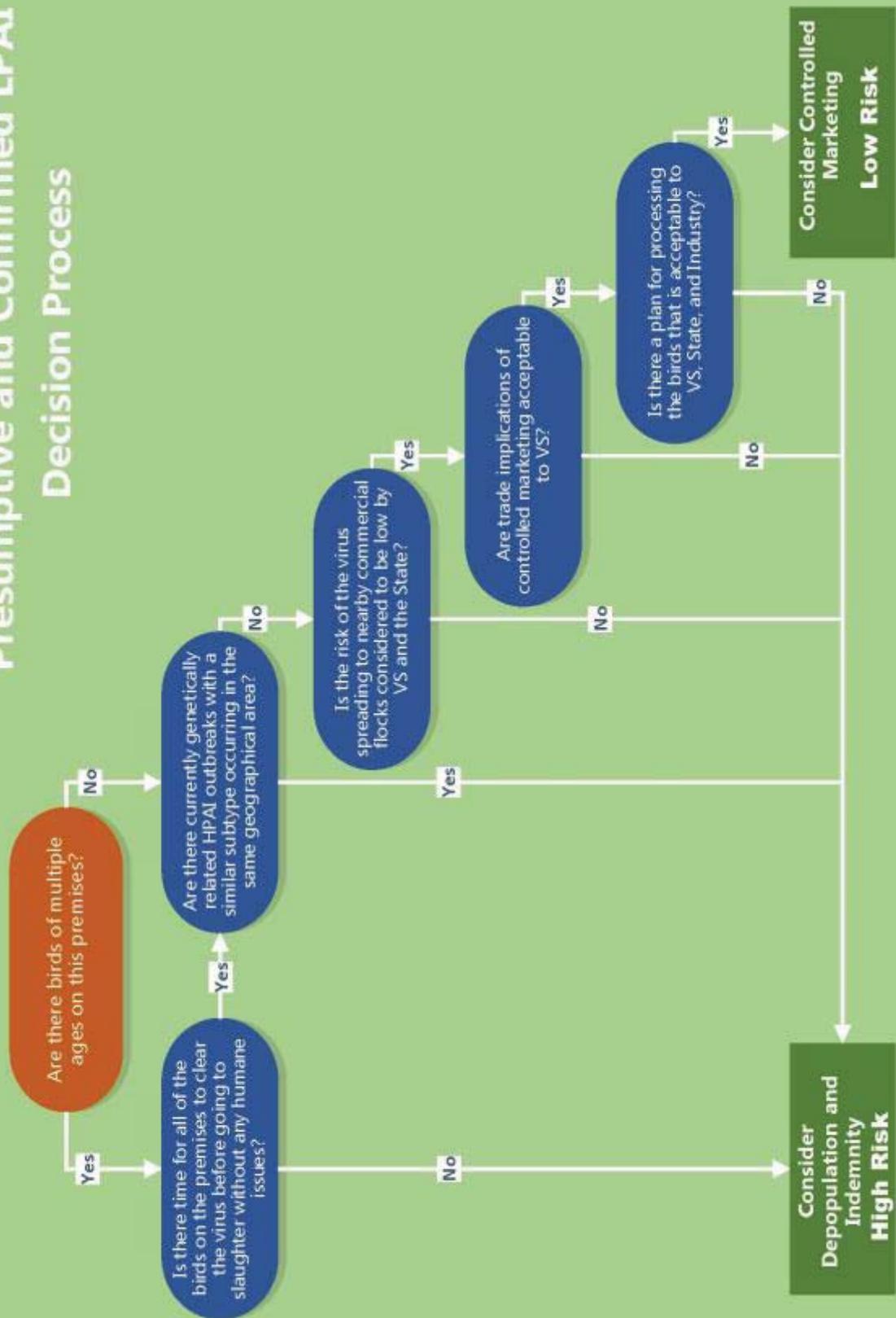
Flocks actively shedding virus pose a greater risk of virus spread, and ongoing opportunities for mutation to HPAI as the virus replicates.

- **This risk increases** where seronegative (AGID/ELISA negative) birds are present while virus is being shed (e.g. IAV detection by PCR).²
 - **This risk decreases** in flocks with waning infection/incidence where virus shedding has significantly decreased (e.g. all swabs representing every house/barn with birds on the premises have Cts greater than 38 by PCR). The flock has significant evidence of recovery (including test results for serology and virus isolation, review of performance records and production data to identify the time of infection, clinical presentation, etc.).
- ⇒ **Criteria for movement:** per 9 CFR 56.5 part 56.5 (c)(ii) – Within 7 days prior to slaughter, each flock to be moved for controlled marketing must be tested for H5/H7 LPAI using a test approved by the Cooperating State Agency and found to be free of the virus:
- Virus status may be determined by lack of nucleic acid detection by PCR direct from swabs or from negative virus isolation;
 - Detection of nucleic acid from non-viable virus is possible, especially where significant seroconversion has already occurred. Therefore, the final determination of virus status may be established through assessing the risk of movement (e.g. factors covered in Appendix D, test results and production/ performance records) and agreement among federal, state, and industry partners.

¹ VI attempt requires 6 days for a single pass followed by PCR at NVSL.

² The rRT-PCR used to detect IAV is semiquantitative; the lower the cycle threshold (Ct) value, the more viral nucleic acid was detected.

Presumptive and Confirmed LPAI Decision Process



Foreign Animal Disease Preparedness
Low Pathogenic Avian Influenza

Dr. Jeff Kaisand
Assistant State Veterinarian
Iowa Department of Agriculture and Land Stewardship
Avian Influenza Workshop
May 30, 2018

Foreign Animal Disease Preparedness
Low Pathogenic Avian Influenza

Iowa Code Chapter 163
Infectious and Contagious Diseases Among Animals

- Powers of Department defined
- Veterinary emergency preparedness and response services necessary to prevent or control a serious threat to the public health, public safety, or the state's economy caused by the transmission of disease among livestock

Foreign Animal Disease Preparedness
Low Pathogenic Avian Influenza

Iowa Code Chapter 163
Infectious and Contagious Diseases Among Animals

- Quarantine
- Movement restrictions
 1. Animals
 2. Animal products
- Determine and employ means for the control of infectious or contagious diseases
- Access to premises

Foreign Animal Disease Preparedness
Low Pathogenic Avian Influenza

Foundation to begin

- Neutral zone
- Decision process
- Minimum for foundation of decisions

Foreign Animal Disease Preparedness
Low Pathogenic Avian Influenza

Neutral zone

- No "have or have not's"-please remember in discussion both sides
- IDALS has regulatory responsibility
- Big picture-Needs of the many outweigh the needs of the few
- Biocontainment

Foreign Animal Disease Preparedness
Low Pathogenic Avian Influenza

Decision process

- Indemnity-Depopulation vs Controlled Marketing
- Involves producer, IDALS, and USDA
- Currently a case by case process
- USDA flow chart as guide

Foreign Animal Disease Preparedness
◦ Low Pathogenic Avian Influenza

Minimums for foundation of decisions

- Premise with LPAI will be quarantined-
producer required to have decontamination
line-permitting off of premise will be based on
a risk assessment (producer preparedness)
 1. Birds
 2. Products
 3. Manure
- No control zone but area surveillance zone
will be set up

Foreign Animal Disease Preparedness
◦ Low Pathogenic Avian Influenza

Minimums for foundation of decisions

- If decision is some type of controlled
marketing-no live birds will be removed
from the site until it is determined that
movement of live birds will create
negligible risk to other birds (antigen and
antibody testing)
- If decision is some type of controlled
marketing-no new birds will be brought on
to premise until all birds on premise when
LPAI was diagnosed are removed

Foreign Animal Disease Preparedness
◦ Low Pathogenic Avian Influenza

Recap-

- IDALS authority and regulatory
responsibility-biocontainment
- Dealing with LPAI is a decision
process in each case
- Minimum foundation requirements
- Producer planning ahead of disease is
critical

Secure Poultry Supply Plans

Molly Lee, DVM, MPH
Veterinary Specialist
Center for Food Security and Public
Health, Iowa State University



Secure Poultry Supply Plan Objectives

- Avoid interruptions in animal/animal product movement to commercial processing from premises with no evidence of HPAI infection
- Helps assure a continuous supply of safe and wholesome food to consumers
- Maintains business continuity for producers, transporters, and food processors
- Based on risk assessments (low to negligible risk)

Requirements to Move

- Meets Monitored Premises criteria
- Pre-Movement Isolation Period
- Meets State's permit guidance for given product
- Meets additional interstate movement criteria (if applicable)

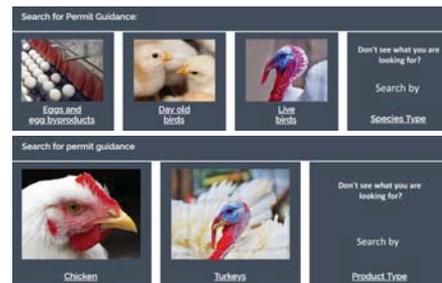
Monitored Premises

- Not infected, contact, suspect
- Epidemiologic information is acceptable
- Surveillance information is acceptable
 - Diagnostic testing results (pre-movement RRT-PCR negative via NAHLN lab, with applicable hold)
 - No unexplained mortalities, clinical signs, or changes in production parameters
- Biosecurity measures acceptable to state/federal authorities
 - Product-specific, truck and driver
 - NPIP Standard E principles

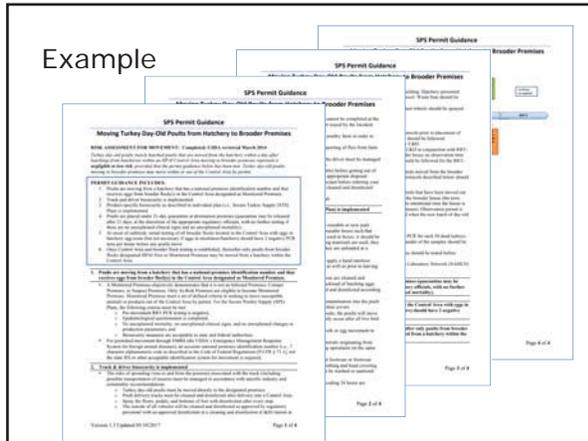
Requesting a Continuity of Business Permit

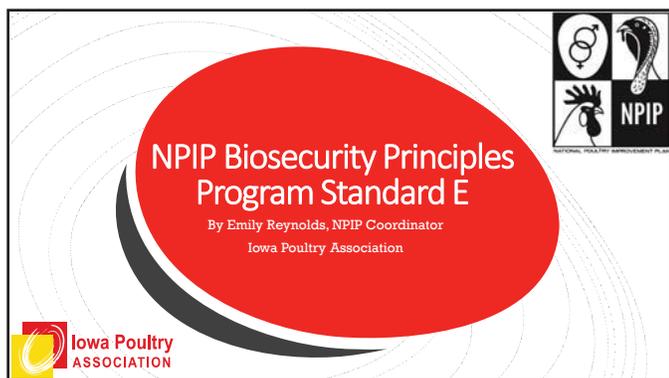
- Type of/reason for movement
 - To farm, direct to slaughter, direct to landfill, into commerce, etc.
- Origin and destination premises (PIN and latitude/longitude)
 - Origin and destination relative to Control Area (into, out of, between, within)
- Specific item and class of item permitted
 - Manure/litter, feed, eggs, groups of animals; species; units
- Estimated shipment date/time (initial and final)
- Estimated number of shipments
- Multiple movements of the same type allowed if permit conditions do not change

Permit Guidance

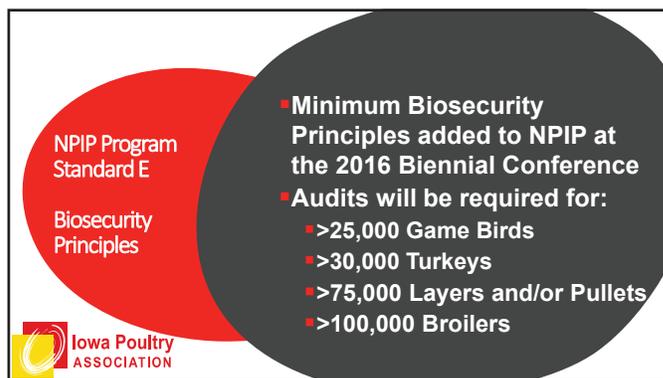


<http://securepoultrysupply.umn.edu>



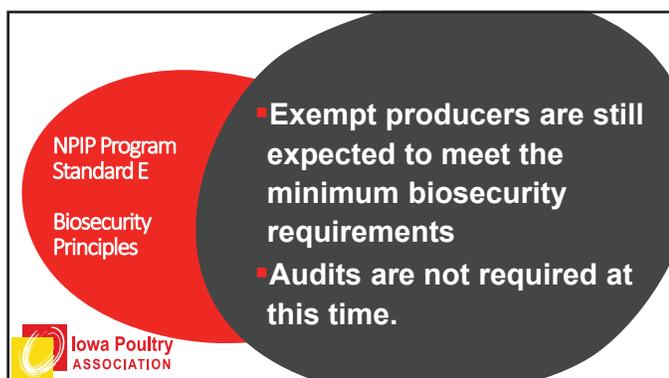


**NPIP Biosecurity Principles
Program Standard E**
By Emily Reynolds, NPIP Coordinator
Iowa Poultry Association



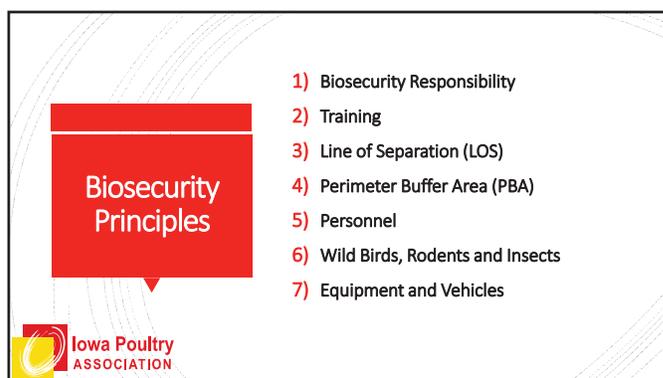
**NPIP Program
Standard E**
Biosecurity
Principles

- **Minimum Biosecurity Principles added to NPIP at the 2016 Biennial Conference**
- **Audits will be required for:**
 - >25,000 Game Birds
 - >30,000 Turkeys
 - >75,000 Layers and/or Pullets
 - >100,000 Broilers



**NPIP Program
Standard E**
Biosecurity
Principles

- **Exempt producers are still expected to meet the minimum biosecurity requirements**
- **Audits are not required at this time.**



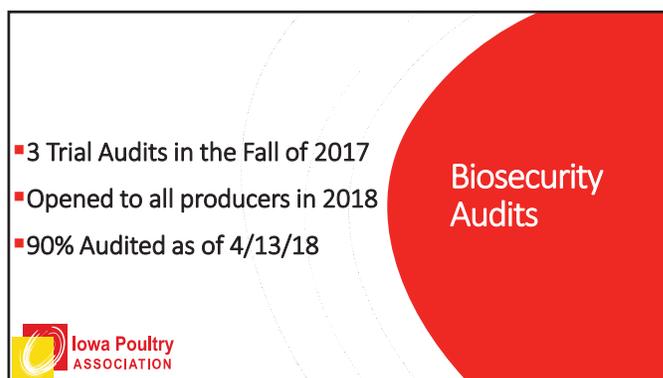
**Biosecurity
Principles**

- 1) Biosecurity Responsibility
- 2) Training
- 3) Line of Separation (LOS)
- 4) Perimeter Buffer Area (PBA)
- 5) Personnel
- 6) Wild Birds, Rodents and Insects
- 7) Equipment and Vehicles



**Biosecurity
Principles**

- 8) Mortality Disposal
- 9) Manure and Litter Management
- 10) Replacement Poultry
- 11) Water Supply
- 12) Feed and Replacement Litter
- 13) Reporting of Elevated Morbidity or Mortality
- 14) Auditing



**Biosecurity
Audits**

- **3 Trial Audits in the Fall of 2017**
- **Opened to all producers in 2018**
- **90% Audited as of 4/13/18**



- Producers perform all principles
 - May not be in writing
- Boundaries in their 'mind's eye'
 - Need to be defined or mapped
 - Traffic patterns
- Heightened disease risk
 - Texts, memos, emails documented

Biosecurity Audits

Lessons Learned



Resources Available:
www.poultryimprovement.org

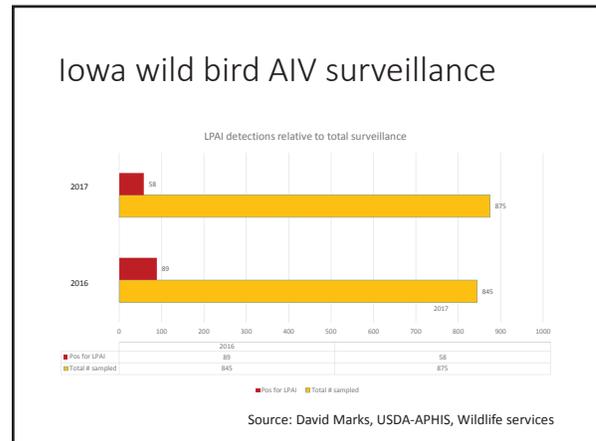
Questions?





NPIP Avian Influenza surveillance and wildlife testing

Yuko Sato, DVM, MS, Dipl. ACPV
 Iowa State University, VDPAM
 Poultry Extension and Diagnostics
ysato@iastate.edu

Iowa wild bird surveillance

- 58 (6.6%) samples out of 875 dabbling ducks were positive for LPAI.
- Samples sent to NVSL and were negative for intercontinental HPAI (see table below)

Bird type	Location (by county)	H5/H7	NVSL results
Gadwall 1	Sac	H5	Negative for 2015 HPAI
Gadwall 2	Sac	H5	Negative for 2015 HPAI
Blue-winged teal 1	Monona	H7	H7N3 LPAI

- Surveillance is ongoing and key to providing epidemiologic information and reminds producers that AI is normally circulating in wild birds.
- Proper biosecurity is the most important factor in keeping your flocks free of infection and should be strengthened during seasons of high migration.

Active Surveillance – NPIP

- NPIP **H5/H7 Monitoring Program**
 - **Layer flocks (11 blood samples):**
 - Pullets within **21 days** of movement to lay
 - Layers **every 12 months**
 - Layers within **21 days** of destruction




NPIP AIV testing for turkeys

- NPIP **H5/H7 monitoring program**
- **6 blood samples** per flock for
 - AGID
 - ELISA
- Need to submit **21 days** prior to slaughter




Passive surveillance - NPIP

- ALL submitted cases of:
 - **unexplained respiratory disease**
 - **egg production drops**, and
 - **mortality**
 will be tested by both (if possible) an approved serological (blood) test and an approved antigen detection (swab) test for avian influenza.



What do these letters mean?

• **Blood tests:**

- Tests for antibodies (exposure ~1+ week ago)
- Fees are covered by USDA cooperative agreement
- Not designed for current infection
 - ELISA (M-F)
 - Rapid test, same day results
 - Used as a screening test
 - High diagnostic sensitivity
 - AGID (M-F)
 - Overnight test (24-hour incubation period)
 - High diagnostic sensitivity
 - Used as a confirmatory test to the ELISA
 - HI (not at ISU)
 - Only at NVSL (USDA lab) for subtyping AI (H and N type)
 - Used to confirm the reason for a positive AGID test



What do these letters mean?

• **Molecular (swab) test:**

- Tests for antigen (virus itself)
- Great for current infection (clinical birds)
- Not useful for chronic infection
 - PCR influenza matrix (M-Sat)
 - Same-day testing
 - Screening test for all AIV
 - Detects genetic material of the virus
 - PCR H5/H7 (M-Sat)
 - Lower sensitivity, higher specificity compared to matrix test
 - Specifically tests for H5/H7 (the important stuff)



Source: Iowa Dept of Ag and Land Stewardship

So what happens if I get a positive?

1. Client (YOU) submits pre-slaughter for avian influenza
2. ELISA results
 - All negative – no further action necessary
 - ELISA positive – report to state vet, further confirmatory testing by AGID
 - **If commercial, collect swab samples ASAP to determine virus status of flock**
3. AGID results
 - All negative – no further action necessary
 - Presumptive positive – report to state vet, forward sera to NVSL for HI testing
 - **If commercial, collect swab samples ASAP to determine virus status of flock**

So what happens if I get a positive?

4. PCR results

- All negative – wait for HI results, control market option for meat-type birds and state vet/producer decision for breeders
- Presumptive positive, index case – forward samples to NVSL for confirmation
 - H5/H7 presumptive positive, index case – forward samples to NVSL for confirmation
 - H5/H7 presumptive positive, 2nd + case – forward samples to NVSL for confirmation; depopulation may be initiated at the state level with:
 - Flock that meets HPAI case definition
 - Agreement of state and federal officials

Any questions?

- ISU-VDL:
(515) 294-1950
- After-hours number:
(515) 290-1969



- Website:

<https://vetmed.iastate.edu/vdl/submissions/forms>



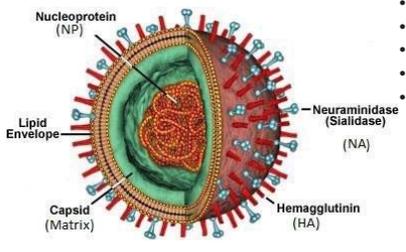
Differences Between Egg Layers and Turkeys in an AI Response

Mohamed El-Gazzar, DVM, MAM, PhD, Dipl. ACPV
 Assistant Professor
 ISU Poultry Extension Vet
elgazzar@iastate.edu




Influenza

Orthomyxoviridae

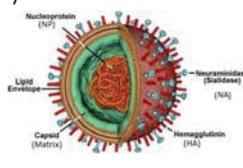


- Influenza A
- Influenza B
- Influenza C
- Isavirus
- Quaranjavirus
- Thogotovirus



Influenza Classification

- Based on NP and Matrix Ag (A, B and C)
- A (Reservoir is water fowl)
- B (Human and seals)
- C (Human and swine)

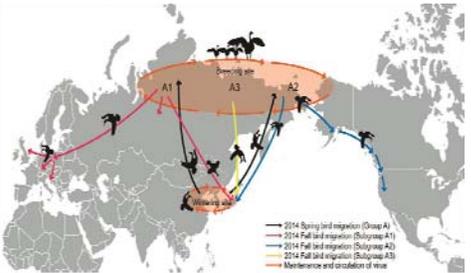



Highly Pathogenic Avian Influenza

- Highly pathogenic to what?
- Definition?
 - H5 or H7
 - Clinical
 - Molecular
- Public health significance?




Transmission is Horizontal



Lee DH, Turchetti MC, Whittier R, Song C, Shoup D. *Intercontinental Spread of Avian Influenza H5N1 in North America through Outbreaks by Migratory Birds*. J. Virol. 79:12226-35; epub ahead of print 4 April 2005. doi:10.1128/JVI.00726-05



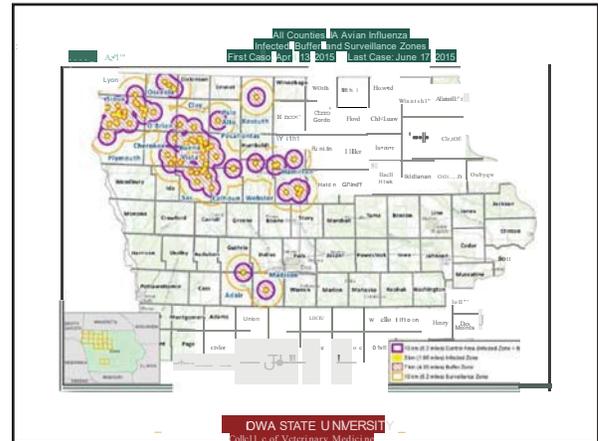
Reportable AI

- Any H5 or H7 infection in domestic poultry
- Goal is always eradication
- Highly pathogenic → Depopulation
- Low Pathogenic → Depopulation, Controlled Marketing, Controlled Product Marketing




Infection to Eradication

- Initial Detection
 - Often Serology
 - Confirmed with PCR or Virus Isolation
- Control/Surveillance – Zone/area
 - All commercial and noncommercial
 - Expanded upon detection
 - Released after eradication

Infection to Eradication

- Detection
- Control/Surveillance – Zone/Area
- Depopulation
- Disposal
- Virus Elimination
- Down Time
- Retesting




Depopulation

- Foaming (broiler and turkey)
- Layers??





Disposal

- In house composting (turkeys and broilers)
- Layers?? Millions of birds
- Thousands of tons of manure
- Composting
- Landfill, Burial, Incineration and rendering





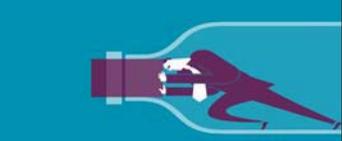
However, it's not Easy in Turkey

- Plan for all steps of eradication
- Focus particularly on Weak Points
- Probability of success depend on Speed



Controlled Marketing

- Detection
- Control/Surveillance – Zone/Area
- Clear the Virus
- Moving to the plant
- Virus Elimination
- Down Time
- Retesting



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Extending the Bottleneck

- Comes with risks
- But can be justified
 - Lack of Funds
 - Saving Protein
 - Other Reasons
- Risk benefits
- Case by case



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Controlled Product Marketing

- Detection
- Control/Surveillance – Zone/Area
- Contain the virus
- Move product
- Clear the Virus
- Continuous Testing
- Retesting

Have No Clear Idea



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Extending the Bottleneck Even Longer

- Comes with risks
- But can be justified
 - Lack of Funds
 - Lack of Options
 - Other Reasons
- Risk benefits
- Case by case
- Establish a process



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Summary

- Two Option (Depopulation – Controlled Marketing/Controlled Product Marketing)
- Depopulation (Two Bottlenecks)
 - Depopulation
 - Disposal
- Bottlenecks less daunting in floor birds
- Controlled Marketing (Clearer process)
- Controlled Product Marketing (Possible)

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Questions?

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Zoonotic Avian Influenza and the Human Component

Dr. Ann Garvey

State Public Health Veterinarian, Deputy State Epidemiologist, Iowa Department of Public Health

Dr. Garvey will provide an overview of the public health system in the US and in Iowa. She will review federal, state and local public health authorities and discuss the role of public health during an avian influenza outbreak response.

The role of public health during a response to an avian influenza with zoonotic potential includes:

- Making antiviral and personal protective equipment recommendations
- Monitoring exposed persons for illness
- Supporting healthcare providers treating ill persons
- Coordinating public messaging about human health risks.

In addition, Dr. Garvey will discuss lines of communication during response.

Appendix 2: Workshop Participants (Sign-In Sheet) and Invitation List

Initials	Name	Affiliation	Email
TA	Alberti, Tom	West Liberty Foods	Tom.Alberti@wlffoods.com
EA	Almoro, Ramchand	Versova Lab	ralmoro@versova.com
AMT	Anderson, Colleen C. Ke	MC Anderson Pullets	cokea@mcapullets.com
BB	Beckman, Bernie	Hy-Line North America	bbeckman@hycline.com
IB	Briester, Ira	Valley of the Moon	ibrister78@gmail.com
AB	Broughton, Adam	Iowa DNR	adam.broughton@dnr.iowa.gov
SB	Buhrow, Dawne	CFSPH	dbuhrow@iastate.edu
SB	Bushman, Stacy	Organic Egg and Broiler Farmer	sbushman@acegroup.cc
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JH	Eggers, Jamee	Iowa Pork Producers Association	jeggers@iowapork.org
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LR	Main, Roger	ISU VDL	rmain@iastate.edu
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Invitation List

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Beckman, Bernie	Hy-Line North America	bbeckman@hyline.com
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Halstead, Tony	Hoover's Hatchery	Tony@hoovershatchery.com
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Weiss, Luke	Hoover's Hatchery	Luke@hoovershatchery.com

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